SATURDAY, JUNE 20, 1874.

ORIGINAL LECTURES.

CLINICAL LECTURE

ON THE TERMINATIONS OF PNEUMOTHORAX; ESPECIALLY ON ITS TERMINATION IN RECOVERY.

Delivered at the Pennsylvania Hospital, November 15, 1873.

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One of the Physicians to the Hospital.

Reported by EDWARD W. JAMESON, Resident Physician.

THIS morning I propose to bring before you some cases of pneumothorax, and to call your attention to the different modes in which this malady may terminate. Particularly shall I dwell upon some points connected with a favorable ending, and show you how the accumulation of air in the pleural sac, which is the essence of this grave malady, may pass away. The patient now before you illustrates some striking facts connected with the subject. Let me present the main features of his case.

Robert T., 21, single, a teamster by occupation, was admitted into this hospital October 21, with the following history: Driving his wagon while in an intoxicated condition, he fell from his seat and was run over, the hind wheels passing over his chest. The wagon was not loaded at the time, and at first he experienced no pain.

On admission, he was sent to the upper surgical ward. He was still under the influence of liquor, and was spitting up small quantities of blood mixed with saliva. He did not cough. No fracture of the ribs could be detected, and the only injury found was an abrasion over the right scapula. The next day the patient said he felt better, had neither pain nor cough, and the hæmoptysis had ceased.

Two days afterwards he began to cough, and expectorated rusty sputa. There was fever in the morning, and in the evening his pulse was 116, and temperature 103°.

On the fourth day after coming to the hospital he was admitted into the medical ward, and this was his condition: "Tongue pale, and covered with a light white fur; appetite poor; some fever; urine normal. On deep inspiration he complains of a pain in the right side, on a line with the axilla. On percussion, a tympanitic note is elicited anteriorly and posteriorly at the upper portion of the right side of the chest. At the base there is dulness, which changes with the position of the patient. Amphoric respiration is heard under the right clavicle and at the inferior angle of the scapula. The breath-sounds are distant. The amphoric voice is well heard. On placing the ear against the chest, and shaking the body, succussion is distinctly perceived. There is constant hacking cough, and he has expectorated a small coagulum of blood. He was ordered pills of quinine, digitalis, and opium.

Gentlemen, you have heard me read the notes of this case prior to its coming into my hands. A few days after taking charge of it I was struck with the fact that no succussion existed, and that the amphoric respiration and percussion had disappeared. They have not been re-developed; the patient is gaining flesh and color; his breathing is no longer labored, and there is a marked change in every respect for the better.

A physical examination to-day finds the right chest larger and fuller than the left. When he breathes, although the right side moves, it does not move so freely as the left. Inspection shows the intercostal spaces on the right side effaced. The percussion-note anteriorly on the right side is clear, except over the lower part of the lung, where from the nipple down dulness is perceptible; no material difference exists anteriorly at the upper part between the two sides; the right side is, however, of lower pitch than the left. Posteriorly, over the upper and middle of the right lung the percussion-note is clear, but approaches to a tympanitic sound, yet not so markedly as four or five days since; lower down there is dulness.

Auscultation over the right side anteriorly shows the respiratory sounds decidedly feebler than over the left side. A few fine friction-sounds are heard at the upper part of the lung both anteriorly and posteriorly on the right side; the respiration at the lower part of the lung is absent; the vocal vibrations are much more distinctly perceptible over the left side. There are not on either side succussion-phenomena or râles. The action of the heart is rapid, the pulse quick and somewhat jerky.

This is undoubtedly a case of pneumothorax ending in recovery. Indeed, when we see that our patient now is up and dressed, it is evident that he also is regaining his strength. Nor will it be necessary to continue the pills of quinine, digitalis, and opium long; a mixture consisting largely of iron with acetic acid and acetate of ammonium will take their place, and act more efficiently the part of a tonic.

There are many points about the case that I could call your attention to, and especially several connected with the development of the trouble. But the great interest consists, after all, in the disappearance of the signs of pneumothorax, and in the striking improvement in health which went hand in hand with the disappearance. The air must have been absorbed, and the spot of puncture of the lung healed. There is still some fluid in the pleural sac, but it is much diminished, and everything betokens a complete return to health.*

Now, this illustrates one form of recovery,—a speedy recovery, too, in which the absorption of air has been rapidly followed by the absorption of the small quantity of fluid that existed. Such cases are, on the whole, not very frequent, yet you will meet with them every now and then. Some years since, I saw with my colleague, Dr. John F. Meigs, and with Prof. Stillé, one quite as striking, and similar in many respects, excepting in its origin. It occurred in the person of an iron-master, about fifty years of age, most extensively and laboriously engaged. He noticed that without any very evident reason he was

* When the patient left the hospital, December 22, he was looking well and strong. The signs of effusion had all but gone; the respiratory murmur over the lower part of the lung had become distinct.

unable to exert himself actively; indeed, exertion made him short of breath, which he attributed to being weaker than usual. Coming to the city, Dr. Meigs found the cause of the waning strength to be a right-sided pneumothorax; but how it had happened could not be definitely ascertained. There was neither tubercle nor emphysema, and the only clue to the case was that several weeks before the dyspnœa was noticed the patient had had a severe cold, attended with cough and oppression, which might have been a latent pneumonia. The physical signs of pneumothorax were certainly most marked: the cough and voice and breath-sounds distinctly metallic; succussion-phenomena did not, however, exist. The liver was displaced, but there was no pleuritic effusion, or this was so slight that its very presence was doubtful. In the course of a few months, under rest and tonics, the air in the sac vanished, and I heard recently that our patient was in vigorous health, and had remarried. In this case, of which we may say that it was a pure one of pneumothorax, the air was absorbed, rest and tonics, as in the preceding case, favoring the favorable issue.

But there are cases which form, as it were, a group by themselves, in which the pneumothorax proper passes away, but in which the disorder terminates in chronic pleurisy, having all the chances and complications, and requiring the treatment, of this affection. The following instance, which came under my observation some years ago, is a case in point. A young man, 22 years of age, in seeking relief for his dyspnœa, stated that while heated and perspiring freely he was subjected to drafts of cool air, and soon afterwards found himself with a cough which had never left him. About four months afterwards he was seized with pain in the left side, and with difficulty in breathing. When he presented himself to me he was pale, thin, had a cough, with thin mucous expectoration, a pulse rapid and feeble, and constant and troublesome difficulty of breathing and pain in the left side. Physical examination showed that the left side of the chest was more prominent than the right, and anteriorly at the upper portion the intercostal spaces were effaced. The left side from the ensiform cartilage to the vertebræ measured nearly three-quarters of an inch more than the right side. Percussion proved the right side to be clearer, while the left side was extremely dull at the lower middle portion anteriorly and posteriorly. Auscultation on the right side anteriorly showed a loud and harsh sound; the expiration at the apex was distinctly prolonged. On the left side, at the upper portion, there was a friction-sound in expiration, but no vesicular murmur; occasionally the ear caught a metallic tinkle and a metallic whiff of respiration, especially in expiration. At the posterior edge of the scapula there was metallic respiration with distinct metallic tinkling. The voice had a metallic ring at the same spot; the fremitus was not increased, perhaps decreased. The vocal resonance anteriorly was feeble. At the posterior portion lower down, voice and respiration were absent. No splashing sound was heard.

I saw my patient from time to time, and found him gaining strength and flesh; his breathing by degrees became easier, and the physical signs improved,—that is, the metallic phenomena were not so marked.

His condition, under the use of iron, iodide of potassium, and cod-liver oil, remained satisfactory for some weeks, and I did not see him until, visiting me again, I found that on percussion on the left side there was flatness from the clavicle down, and over the whole of the left lung posteriorly the same absence of resonance existed. The right side was clear. Inspection showed the heart beating on the right side, pushed considerably over the right edge of the sternum. Auscultation made apparent that the inspiration all over the right lung was distinct, even somewhat harsh; the expiration was prolonged. On the left side, anteriorly, the respiratory sound was nearly absent; between the second interspace towards the sternum an occasional whiff-like amphoric breathing was heard, and at a point posteriorly nearly corresponding to the middle of the scapula this same sound was heard, only more blowing and less amphoric. At the upper portion of the lung the voice was distinct, but not so much so as on the right side, although it was slightly more concentrated. The vocal fremitus was stronger all over the right lung.

In the course of some weeks all the amphoric phenomena had disappeared, and the case had become one of chronic pleurisy with large effusion. The most troublesome symptom was difficulty of breathing, and although the general condition continued to improve, this did not. The operation of paracentesis was urged, but declined. My patient now left the city. After losing sight of him for two years, he presented himself with the statement that since last examined he had been living in Connecticut, and had been working steadily, and although on severe exertion he had not been able to breathe freely, yet he had been generally in good health up to three or four weeks prior to his return, when, after a by no means hard day's work, he was seized with chills and a cough, which he attributed to checked perspiration. He was weak, and on listening to his chest I found there were râles in both lungs, especially audible over the right. In the left a most peculiar sound was heard: it resembled a double blowing sound of high pitch, but was metallic, and did not stop when breathing stopped. It seemed to be produced by the action of the heart; yet there was no murmur in the heart, nor was this sound constant. Lower down, the respirations were very feeble, hardly audible. There was dulness on percussion posteriorly low down, also at the inferior lateral portions of the chest; the note was clear above.

The heart was precisely at the right side of the sternum; there was no succussion-sound, but rattling sounds were audible on breathing, even when the ear was not placed to the chest. He was expectorating a great deal. At several examinations made subsequently, distinct metallic breathing and tinkling were perceived near the inferior angle of the left scapula, and signs of tuberculosis of the right

apex, and of softening at the left, became manifest. Still later in the case the physical signs changed again. There was dulness on percussion *all over* the left lung, beginning very high up anteriorly; the amphoric sound, the râles and metallic tinkling, had disappeared. It was evident that the effusion had again increased. The difficulty in breathing was now very great; the expectoration amounted to but little. The feet began to swell, and night-sweats were frequent and exhaustive. The dropsy increased, and the patient died, exhausted. His illness had lasted upwards of three years.

Now, I shall not attempt to explain to you at length the phenomena of this remarkable case. We may, I think, assume that the patient had at first a latent pneumonia, followed by giving way of the lung and pneumothorax; that either just prior to this, or soon afterwards, he became tubercular, and that though the tubercular trouble never assumed any activity until late in the case, it finally much hastened the fatal ending.

But I pass by these points, as well as the interesting fact that the metallic phenomena were at times developed by the action of the heart, to recall how the case of pneumothorax terminated in chronic pleurisy; how the opening through which the lung and pleura communicated must have been closed; how comparatively well the man was for several years; how, finally, the same spot at which the original injury took place must have reopened, or one near to it have given way; and to note the curious way in which the signs of pneumothorax again disappeared, suggesting that the second break had been closed, and, most likely, also in the same manner by the exudation resulting from the inflammation of the irritated pleura.

You can easily understand, also, how in a case of the kind, provided the fluid can be evacuated, and no other trouble lie back of the chronic pleuritic effusion, a complete recovery may happen.

Let me now call your attention to a third mode of termination: not one that can be exactly called a recovery, yet one in which the patient remains for a long time in fair general health, while the signs of pneumothorax persist.

I shall never forget my astonishment at the first case of this nature I saw,—that of a lawyer, who from his history had evidently had the malady for nearly a year, and in whom the shortness of breath was the only annoying symptom,—when I found the most marked signs of pneumothorax in examining his chest, including succussion and metallic tinkling.

Since, I have seen similar instances of what I may call chronic pneumothorax; and it is astonishing how well some of them have done, and how the breathing-powers have accommodated themselves to the anomalous state of things.

But sooner or later, unless the opening in the lung closes, and the disorder enters, therefore, into the second category discussed, it terminates fatally, and usually by gradual exhaustion. And if you ask me whether, from experience, I can tell you of any general law by which you may suspect that the case has ceased to do well, I answer that I believe that the accurate appreciation of *the quickening of the respiration, and especially the marked quickening of the action of the heart*, is that general law.

Having now explained to you the terminations of pneumothorax in recovery, or at least in conditions favorable to the prolongation of life, I will show you the specimens obtained from an instance of tubercular pneumothorax recently in the ward, and will, in reading you the history, tell you of the means by which, while they did not avert the unfortunate issue, considerable relief was afforded:

"Charles W., 40, married, carpenter, free from venereal taint, a sober, industrious, hard-working man, whose parents died of phthisis.

"His wife relates that he had more or less cough since last summer, but was never laid up until eight weeks before admission. About that time, while working at his trade, he was exposed to two rain-storms. This increased his cough, and his expectoration was more abundant. He had muscular pains, and felt much indisposed. Two weeks later he fell off a 'board-float' into the river, and the effects of this, added to his previous unwell state, laid him up.

"His symptoms were repeated chilliness, followed by fever, languor, general weakness, loss of appetite. His sputa were yellow, and abundant, but of late he has expectorated but little. Has never had night-sweats; but lays stress on the fact that his breathing grew 'shorter and shorter.' While sick he had good attention, and the impression was that he had inflammation of the lungs.

"On the day before Christmas he thought himself able to work during the sunny hours, and made the attempt, but found himself too weak and short-breathed to continue on.

"On admission, the patient looks anæmic; he is very weak; his respirations are labored; decubitus is on the right side, with the shoulders rather elevated; there is little or no cough.

"Temperature 99°; pulse 110; respiration 40; urine high-colored, acid, specific gravity 1.028, non-albuminous.

"Physical signs—metallic cough and respiration, and comparatively imperfect succussion at the lower portion of the right lung posteriorly. Of all the phenomena the metallic-ringing cough is the most distinctive; percussion note is tympanitic from the upper part down posteriorly, not markedly so at apex, though here even more than at the apex of the left side.

"He was ordered tincture of cannabis indica, gtt. xx every third hour, quinine, gr. x daily, brandy, and beef-tea.

"A few days after admission, his pulse was 112, temperature 98°, respiration 60.

"There was crackling with coarse respiration posteriorly, left side, and at middle part anteriorly, and towards the sternum was distinct metallic respiration, especially at the left edge, and transmitted across from the right side. The heart was pushed over to the left axilla. The other signs present on the day of his admission were unchanged. The patient was covered with beads of sweat, laboring hard at each inspiration, and, as the difficulty was increasing, aspiration was decided on. The entrance to the chest was effected posteriorly, between the fourth and fifth ribs, over the point of greatest tympanitic resonance and amphoric breathing. As soon as the cavity of the chest had been entered, air rushed out with a whistling sound; the aspirator was applied and pumped for a few minutes, when a yellowish fluid, of creamy consistence, showed itself, and was drawn off to the amount of nearly one quart.

"The operation gave him much relief, and his expression was that a great load had been taken off his chest. The respiration was more free, less labored, and he sat up in bed more comfortably than before the operation.

"The relief, however, was but temporary, and the patient died forty-eight hours after the operation."

The specimens which here lie before you were removed some eleven hours after death. It was noted that the emaciation was not marked, and that the thorax on being opened allowed of a free escape of air. The right lung, you notice, is collapsed, and the pleura on both its costal and its pulmonary surface is covered with a thick layer of tough lymph.

The lung is reduced in size, and there is a large cavity in its upper lobe, while the lower lobe is filled with cheesy masses.

The left lung is somewhat torn, due to the adhesions which existed posteriorly and at its apex; the upper lobe is infiltrated with the same cheesy masses as on the right side, only more firm, perhaps, though some to the touch feel quite soft.

The pleura on this side looks to be covered with very minute miliary-looking bodies, which appear almost like granulations; yet to the touch they feel as if immediately beneath the surface.

The serous membrane of the heart is covered, here and there, with lymph, and a few bands exist between the opposing surfaces, but these are readily broken down. Aside from the liver, which is enlarged and somewhat congested, the other viscera look normal.

In this case, you see, I employed cannabis indica first, and from this I have known relief to the dyspnœa, but the harassing symptom was far more influenced by the use of the aspirator; and, in conclusion, I call your attention to the value of this instrument in assuaging the distress of cases in which you are forced to despair of a cure.

ORIGINAL COMMUNICATIONS.

ON LIGATURES: AN ATTEMPT TO DECIDE ON THE BEST MATERIAL FOR THE LIGATION OF ARTERIES.

WITH EXPERIMENTS.

BY JOHN R. HAYNES, M.D.,
Philadelphia.

(Concluded from page 568.)

ANIMAL LIGATURES.

IT has long been the hope of surgeons that some form of ligature might be obtained which could be left in the wound without creating suppuration, and over which union by first intention might take place. We have seen how the advocates of short silk ligatures were disappointed by the results of experience: finding that disturbance of some sort almost invariably ensued from their use. During the present century a series of ligatures composed of various animal tissues has been brought into notice, under the belief that the peculiarity of their composition would not only render them innocuous, but would also lead to their absorption, and thus prevent all chance of their acting as foreign bodies. Hence it was supposed that union of wounds by adhesion would occur much more frequently than under the employment of the common silk ligature; for the latter was accused as the fruitful source of prolonged suppuration, and also (from the fact that in the process of extrusion it necessarily divided the artery) of secondary hemorrhage. The latter accident, it was further thought, would cease to torment both surgeon and patient, for it was confidently advanced that animal ligatures would not cause division of the artery, because of their speedy removal by absorption.

The celebrated Physick, to whom we are indebted for so many real advances in the art of surgery, was the first to employ the animal ligature in actual practice. He used strips of chamois leather, rolled into a round hard cord between two marble slabs. In 1813, Dr. Thomas Young, of Edinburgh, mentioned catgut as a substance worthy of trial for ligation of arteries,* and, indeed, we find proofs of the use of the same material for sutures in the writings of Rhazes (A.D. 900), and of Albucasis (who flourished about two centuries later). Notwithstanding these facts, no doubt exists that Physick, in 1814, originated the use of the animal ligature. Unfortunately, no record of the results obtained by him remain, although it is said that his example was followed by Dorsey.

Dr. H. G. Jamieson, of Baltimore, used ligatures made of strips of buckskin for a number of years. He never published a detailed account of his cases, but it is said that the ligatures were never known to come away, and that the wounds generally healed by first intention. In experiments on animals he found that buckskin ligatures were sometimes encapsulated and sometimes absorbed.†

Various other tissues have been employed: thus, Hartshorne, of Philadelphia, used strips of parchment, and Eve, of Kentucky, the dried tendons of the deer. Manec, of Paris, made trial of filaments of nerves and tendons, but found that the wound never healed by first intention without the subsequent extrusion of the ligatures.

In 1817, Cooper introduced catgut into practice. Porta, in 1845, published the results of his experience with this substance, and finally Lister, of Glasgow, in 1869, revived its use, and taught a peculiar method of preparing it.

CATGUT LIGATURES.

Experiments on Animals.—Sir Astley Cooper recites his experiment in the following words:

"I tied the carotid of a dog with catgut ligature [prepared by soaking in water at 100° F.]; in a fortnight after, I killed the animal, and found that the ligature had not been dissolved, but that it had cut its way through the artery, and was situated in a cyst like that which is found around a ball, between the divided ends of the vessel, in a quiescent state."‡

* Introduction to Medical Literature, Edinburgh, 1818, p. 424.
† Cooper's Surgical Dictionary, Amer. edit., art. Ligature.
‡ Cooper's Lectures, 1829, p. 168.

Porta made numerous experiments with catgut on the arteries of various animals. In eighty experiments to test the frequency of absorption, the ligature was absorbed in thirty-three instances, and in several others very much softened. In some cases it became encysted, or, becoming dry and stiff, "it was left bare in the layers of the cellular tissue." Occasionally an abscess formed, and the ligature was thrown off. Out of two hundred and thirty-six experiments to test the frequency of this occurrence, abscesses formed in twenty-six. "Catgut," says Porta, "differs from other ligatures, as it does not always divide the internal wall the moment the knot is formed, but, becoming lax by the process of softening, it sometimes allows the artery to reopen. This, however, does not interfere with the success of the operation when the relaxation is gradual, and the internal plug is formed in time."*

Experiments of the Writer.

Exp. XXIV.—The carotid of a cat was tied with non-carbolized catgut, and, one inch below, with carbolized catgut. The wound, which had been closed by a continuous suture of fine silk, healed by adhesion. In twenty-five days the parts were examined: no traces of the ligatures could be found. The vessel was occluded at and between the points to which they had been applied.

Exp. XXV.—The carotid of a cat was tied firmly with catgut (non-carbolized); the wound was treated as in Exp. XXIV., and with the same results. When the parts were examined, forty-four days after, the ligature was found *in situ* around the remains of the artery; it presented no appearance of absorption. [See Experiments VIII., XIII., and XXII.]

Results of the Use of Catgut on Man.

Cooper, in 1817, tied the femoral of an old man, for popliteal aneurism, with catgut which had been soaked in warm water. The wound healed, without suppuration, in four days, and nothing was seen of the ligature. He subsequently employed catgut in three additional cases of aneurism, in all of which "it came away by suppuration and ulceration." From the result of these cases and the experiment related above, Sir Astley concluded that catgut ligatures were not at all superior to common ones, and abandoned their use.

Norman, of Bath, England, tried catgut in two cases of aneurism, but long and troublesome suppuration ensued in both instances.

Porta relates eleven instances of ligation of arteries in their continuity by catgut. In only one of these cases, an instance of ligation of the carotid, can the result be said to have been perfectly satisfactory. In no case was the ligature seen to come away, but the artery was found divided in all instances in which the patient died after a sufficient interval had elapsed.

Manec, of Paris, in some cases in which he tried catgut found that it was always extruded by suppuration in cases where union by adhesion occurred. No details of the cases are given.†

The following table gives all the recorded cases in which catgut (non-carbolized) was used in ligating arteries in their continuity. In all the cases the disease requiring the operation was aneurism.

NO.	OPERATOR.	ARTERY TIED.	HISTORY OF THE CASE.
1	Porta.*a*	Carotid.	The patient did well, but the wound did not unite till two months had passed.
2	Porta.	Carotid.	Wound healed soundly and permanently in four days.
3	Porta.	Carotid.	Death in forty hours.
4	Porta.	Brachial.	The patient died in sixty-five days after operation, of pneumonia, "probably pyæmic." The wound had suppurated till death, but the autopsy showed this to be superficial.
5	Porta.	Brachial.	Wound did not close for a month.
6	Porta.	Femoral.	Wound suppurated until death, which occurred on the seventeenth day, from gangrene.
7	Porta.	Femoral.	Death in fifty-five hours.
8	Porta.	Femoral.	Death in ten days, from encephalitis. External wound healed, but small abscess found beneath fascia lata.
9	Porta.	Ext. iliac.	Death on the third day, from encephalitis.
10	Guerini.*b*	Brachial.	Wound did not close for five weeks.
11	Guerini.	Post. tibial.	Tumor laid open, causing a large wound, and catgut applied. Wound closed in six weeks.
12	A. Cooper.*c*	Femoral.	In this man, who was eighty years old, the wound was closed with adhesive plaster, and, when examined on the fourth day, was found perfectly healed.
13	A. Cooper.	Femoral.	"The catgut came away by suppuration and ulceration as in common cases."
14	A. Cooper.	Femoral.	
15	A. Cooper.	Femoral.	
16	Norman.*d*	Femoral.	The wound suppurated for six weeks. Ligature was not seen to come away, but operator thought it did.
17	Norman.	Femoral.	Very long in healing.
18	Crampton.*e*	Com. iliac.	Pulsation returned at fiftieth hour, and so far increased as to justify the suspicion that the ligature had softened and given way. On the eighth day the ligature, the ends of which had been left hanging from the wound (not cut short, as in the other cases), came away. On the tenth day, the man died in less than a minute, from hemorrhage from the distal end of the artery. On examination, internal and middle coats divided. An opening existed in external coat, which communicated with abscess. The operator observes, "It appeared that the ligature had been dissolved by the heat and moisture of the wound, and thrown off before the obstruction of the artery or the coagulation of blood in aneurismal sac had been completed. It further appeared that the dissolution of the ligature had caused a small abscess in the place which it occupied."

a Porta on the Pathological Alterations of Arteries, etc.
b Ibid.
c Cooper's Lectures on Surgery.
d Norman, Med.-Chir. Trans., vol. x. p. 120.
e Crampton, Med.-Chir. Trans., vol. xvi. p. 163.

Professor Agnew used catgut (non-carbolized) in two cases of amputation at the Pennsylvania Hospital. In one, some of the vessels were tied with catgut, and some with silk. The wound pursued the ordinary course, and the patient recovered. In the second case, catgut alone was used; the man died of pyæmia.

CARBOLIZED CATGUT.

Preparation.—Lister directs that catgut be prepared by soaking it for at least four hours in an oily solution of carbolic acid (one part to five of olive oil to which a very small quantity of water

* Op. citat., pp. 21, 22.
† Lisfranc on the Obliteration of Arteries, Paris, 1832.

has been added). At the beginning of an operation the catgut may be transferred to water.

Mr. Lister advocates carbolized catgut very strongly for the ligation of arteries. He formerly employed it for sutures also, but has now abandoned it for that purpose; why, he has not informed us. Perhaps the almost invariable suppuration which followed its use as a suture, in the writer's experiments on the lower animals, may throw some light on this point. The ingenious inventor of the antiseptic system seems to base his support of this variety of ligature on the following experiment, for in no place has he published any cases bearing on the subject:

The carotid of a calf was tied with two ligatures of animal tissue at an interval of one-half inch, the sheath of the vessel being left intact between them. The cardiac ligature was a threefold cord, composed of strips of peritoneum of ox. The distal ligature was a double one of minikin catgut. Both ligatures had been soaked for four hours in a saturated watery solution of carbolic acid. The wound was brought together with copper sutures, and antiseptic dressing used. In ten days dressings removed, and wound found entirely healed. On dissection, in thirty days, the site of each ligature was occupied by a ridge continuous with the external coat of the artery. Under the microscope this was found to be composed of fibrous tissue. The author considers that these ridges were *the ligatures which had undergone organization*. The vessel was obliterated in and between the position of both ligatures.*

Experiments of the Writer with Carbolized Catgut.

The following was a repetition of Lister's experiment:

Exp. XXVI.—The right carotid of a goat was tied with a cord composed of three pieces of carbolized catgut, and one-half inch above, leaving the sheath intact between, with two pieces of "minikin" gut. Both ligatures had been soaked four hours in a saturated watery solution of carbolic acid; and, indeed, carbolic acid was used according to Lister's directions all through the experiment. The wound was closed with silver sutures. On the tenth day, the dressings were removed and the sutures taken out. The wound was perfectly healed. On the thirtieth day the parts were examined. The lesser ligature had disappeared, and the artery was not constricted at its site; a partially adherent clot occupied the vessel down to the lowest ligature, which had caused the walls of the vessel to be absorbed within its noose. A thin layer of organized lymph, continuous with the edges of the vessel, covered the sides of the ligature. Above the ligature, the vessel was not obstructed except by the clot just mentioned; below the vessel was entirely obliterated for some distance. The ligature itself was slightly swollen and softened.

Exp. XXVII.—A coil composed of eighteen inches of carbolized catgut was placed in the peritoneal cavity of a cat. On examination in seventy days no traces of the catgut were found except a few stained lines on the omentum.

Exp. XXVIII.—A coil composed of twelve inches of carbolized catgut was placed under the skin of a cat's shoulder, and the incision closed by sutures of the same material. It healed by first intention; on dissection in five days the catgut was found floating in pus.

Exp. XXIX.—A piece of carbolized catgut two inches long was inserted under the integument of a cat; was extruded by suppuration on the fourth day.

Exp. XXX.—The biceps extensor of a cat's leg was surrounded with carbolized catgut subcutaneously. No disturbance ensued, and on dissection in seventy-three days only a shred of the catgut could be found.

Exp. XXXI.—The carotid of a cat was ligated with carbolized catgut, and the wound closed with a continuous suture of the same material. Profuse suppuration ensued, and healing was not completed till the twentieth day. In thirty days a dissection of the parts revealed the ligature in exactly the same condition as when applied, encapsulated, and enclosing the remains of the artery.

Exp. XXXII.—Same as Experiment XXXI. The wound, which was closed with silk sutures, healed by first intention. On examination in thirty-two days the vessel was occluded, and no trace of the ligature remained.

Exp. XXXIII.—Same precisely as Experiment XXXI., with a like result.

Exp. XXXIV.—Same precisely as Experiment XXXI., with a like result.

Exp. XXXV.—Same as Experiment XXXI. Wound closed with carbolized catgut sutures; slight suppuration ensued. On dissection in sixty-three days, no trace of ligature; the artery was adherent to its sheath, and slightly indented at point of ligation. It was occluded for the space of one-sixth inch.

Exp. XXXVI.—The carotid of a cat was tied with carbolized catgut, and the wound closed with sutures of same material. "Antiseptic" dressings were applied. On dissection after six days pus was found flowing from the wound; the knot of the ligature projected into an abscess bounded by the sides of the wound. The noose of the ligature was surrounded by healthy tissue, and no sign of absorption existed.

Exp. XXXVII.—The carotid of a cat was tied in two places with carbolized catgut, and divided between the ligatures; the wound was closed by a continuous suture of fine silk, and healed by adhesion. On dissection after thirty-six days the ends of the vessel were found united by a band of organized lymph. The ligatures, surrounded by a thin capsule, were *in situ*, but barely visible from the progress of absorption.

Exp. XXXVIII.—The carotid of a cat was tied with a strip of bullock's peritoneum (not carbolized). The wound, which was closed by silk suture, healed by adhesion. In sixteen days the parts were examined. The ligature had entirely disappeared, except the knot, which was *in situ*. The artery was occluded.

Exp. XXXIX.—A piece of carbolized catgut (as thick as saddler's silk) was passed under a portion of the skin of the writer's arm, and the ends tied together externally. The parts were protected by adhesive plaster. On the eighth day one end of the catgut dropped off, and slight traction at the other end sufficed to bring away a portion of the gut that had been under the skin. This portion presented a nibbled and macerated appearance, and on taking it between the thumb and the finger slight pressure was enough to disorganize it. A drop or two of pus exuded from each orifice, and the track of the catgut presented to the finger the sensation of a hard band, as if it were occupied by lymph.

RESULTS OF THE USE OF CARBOLIZED CATGUT IN MAN.

The following table gives a short account of all the recorded cases in which arteries have been ligated in their continuity with this material:

* Lancet, April 3, 1869, p. 454.

NO.	OPERATOR AND REFERENCE.	AGE.	ARTERIES TIED.	DISEASES FOR WHICH TIED.	HISTORY.
1	T. Holmes. Lancet, 1872, p. 69.	50	Subclavian and carotid.	Innominate aneurism.	The vessels were tied tightly. Some small vessels in the subclavian wound were tied with silk. Continuous catgut suture was used. Dressing antiseptic for one day, when the patient disturbed the bandages. The carotid wound suppurated a little, but finally closed on the thirteenth day. The subclavian wound contracted to a short sinus, which remained till death, which occurred on the fifty-fifth day, from inflammation of sac. Autopsy.—"On the carotid, lying between it and vein, there was a lump something like a small gland, and the artery was constricted. When laid open, its calibre was found to be interrupted merely by a thin stratum of partly decolorized clot. A distinct ridge, or transverse mark, indicated the position of the ligature, and below this, between it and the heart, at about one-eighth of an inch distant, were two very minute apertures in the internal coat. One did not lead through walls of vessels; the other led into the small lump above mentioned, which was a mass of cellular tissue and débris of blood-clot, in which no ligature could be found, though carefully looked for. Nor was there a trace of the ligature in any other part. In the subclavian, also, there were no remains of the catgut ligature. This artery was not interrupted in its continuity in the place where it had been tied, but was completely closed by a diaphragm less than one-fourth of an inch thick."
2	C. Heath. Lancet, July 27, 1872, p. 108.	48	Subclavian and carotid.	Aortic aneurism.	The wound was dressed with cotton-wool. When opened, on eighth day, it was found entirely and permanently healed by first intention. Patient improved greatly, and, after leading a very intemperate life for four years, died from bursting of the aneurism in front of the sternum. On autopsy, the tumor, which had been mistaken for innominate, was found to be entirely aortic.
3	Thomas Bryant. Med. Times and Gazette, July 27, 1872, p. 87.	33	Subclavian.	Innominate aneurism.	A large vein was wounded and ligated. On the fourth day, slight bleeding from the wound; checked by ice. On the fifth day the dressing (cotton) was removed. Wound discharging broken-down blood from only spot not healed.
4	Stocks. Liv. and Manch. Med. and Surg. Rep., 1873, p. 127.	42	Subclavian.	Axillary aneurism.	The artery was tied in its third part with a double ligature. Antiseptic treatment. On sixth day, bloody discharge from wound. Tenth day, wound slightly opened; no reparative action. Twelfth day, man died of asthenia,—probably septicæmia, though the author confesses that he cannot satisfactorily account for his death. Autopsy.—One lung partially solidified. The ligature had disappeared. There was a deep constriction in the artery at point of application. On opening the vessel, it was found that its coats had not been injured. A firm clot, one and a half inches long, filled the proximal side. On the distal side the tumor was close to the site of ligation.
5	Bernard. Am. Lancet, Sept. 1872, p. 482.	25	Common carotid (left).	Hemorrhage (from fauces).	Antiseptically treated. In nineteen days the wound was healed, except a small sinus, through which the knot of the ligature, as the operator supposed, was discharged. At the expiration of fifty-nine days there was still slight oozing from centre of wound.
6	Bernard. Op. citat., p. 481.	39	External iliac.	Femoral aneurism.	Antiseptically treated. In six days the edges of the wound were extremely inflamed; "almost sphaceloid." The carbolic dressings were removed, and opiates applied. After thirty-nine days, thick, purulent matter still discharging from the wound. In fifty-three days, wound entirely healed. It is not stated whether or not the ligature came away.
7	Atchley. Lancet, April, 1870, p. 585.	41	Femoral.	Popliteal aneurism.	The incision "was quite healed by the twentieth day."
8	James Spence. Lancet, June 5, 1869, p. 773.		Common carotid (right).		The ligature was tied with three knots. The patient did very well until next day, when, after taking a drink of milk, he vomited, then immediately became comatose, and paralyzed on the left side. Death ensued on third day after operation. On autopsy, it was found that the vessel was not constricted at the point where the ligature had been applied. Some loose, pulpy material was found. On examination, this proved to be the ligature, which had separated at a point opposite the knot. A large embolus obstructed the right middle cerebral artery. The author supposes that the vomiting caused rupture of the ligature, after which the clot was swept up by the blood-current.
9	Jessop. Lancet, Nov. 30, 1872, p. 776.	22	Brachial.	Traumatic aneurism at head of elbow, size of walnut.	The tumor was laid open, and the artery secured by means of two carbolized catgut ligatures, placed on either side of a minute opening at bottom of sac. Antiseptic treatment. "Wound healed directly," and patient went home, cured, on twelfth day.
10	Lund. Lancet, August 5, 1871.	42	External iliac.	Femoral aneurism.	Antiseptic treatment. On eighth day, wound healed, except at one spot. No pus secreted. Twenty-sixth day, patient sitting up.
11	Watson. Ranking's Abstract.		External iliac.	Inguinal aneurism.	The patient died nine weeks after, from hemorrhage. A silk ligature was applied to abdominal aorta, sixty-five hours before death. On autopsy, the external iliac was found completely divided, and nothing was seen of the ligature.
12	Nankinell. Lancet, Feb. 10, 1872, p. 187.		Femoral.	Popliteal aneurism.	Antiseptic treatment. Wound suppurated, and healed in thirty-one days. Nothing said of ligature coming away.
13	T. Smith. Lancet, Nov. 23, 1872, p. 741.	30	Femoral.	Popliteal aneurism.	Antiseptic treatment. Wound suppurated, and was not entirely healed after a month had passed.
14	T. Smith. Lancet, Oct. 13, 1872, p. 549.	40	Femoral.	Popliteal aneurism.	Antiseptic treatment. Eighth day, sutures removed; no pus. Ninth day, wound healed, except at lower part, where lint was inserted.

NO.	OPERATOR AND REFERENCE.	AGE.	ARTERIES TIED.	DISEASES FOR WHICH TIED.	HISTORY.
15	C. J. Gibbs. Brit. Med. Jour., Sept. 24, 1870.	35	Femoral.	Popliteal aneurism.	Antiseptic treatment. Eighth day, united by first intention, except that a slight superficial discharge existed, which continued fourteen days. Seven weeks after, man died of phlegmonous erysipelas of same limb. Autopsy.—Large mass of hardened lymph surrounded wound. The artery was "narrowed and compressed" at point of ligation. Its coats were perfect. Its calibre was obstructed by organized clot. No traces of ligature were observed.
16	Holden. St. Barth. Hosp. Rep., 1872, p. 187, Am. Jr. Med. Sc., July, 1873, p. 194.		Femoral.	Popliteal aneurism.	Antiseptic treatment. Slight pulsation was noticed in the aneurism on the following day, and became marked one day after. The wound suppurated acutely, and on the eighth day after the operation an attack of bleeding took place, which proved instantly fatal. On autopsy, no trace whatever could be found of the ligature. The aneurism was found to have burst, and there was a small, jagged perforation in the artery at the seat of the ligature, through which the hemorrhage had taken place. No description is given of the state of the artery, beyond this: that the two internal coats had been fairly divided by the ligature, and there was no clot in the vessel.
17	Bickersteth. Liv. and Manch. Med. and Surg. Rep, Am. Jour. Med. Sci., Oct. 1873, p. 497.	73	Gluteal.	Traumatic aneurism.	Antiseptic treatment. Patient left hospital, cured, in a month.
18	Watson. Glasgow Med. Jr., May, 1870, p. 341.		Femoral, and afterwards external iliac.	Popliteal aneurism.	Two years previously, the femoral had been tied for the same disease, with a silk ligature. The operation had been successful, and the patient had recovered perfectly, but a secondary aneurism made its appearance in the position of the first. On September 10, 1869, the femoral was tied in Hunter's canal with carbolized catgut. Silk sutures were introduced, but not tightened for some hours, in order to allow the escape of the serum. The aneurism still continued to pulsate, and on the 15th of September (five days after first operation) the external iliac was tied, antiseptically, with carbolized catgut. The skin and areolar tissue sloughed around this wound, leaving it clear and healthy. September 17, the sac, which had stopped pulsating, sloughed, both wounds granulating without suppuration. October 30, hemorrhage from sac, and limb amputated. November 15, man died. Nothing had been seen of ligatures. On autopsy, both wounds were granulating from the bottom. The arterial system was diseased. The left external iliac presented no appearance indicating that it had undergone ligation. Its lining membrane was perfect. Below the position of ligature it was somewhat reddened. *The vessel was entirely empty, and its calibre not diminished.* The calibre of the femoral, at the position where the silk ligature had been applied, two years previous, was obliterated. Where the first catgut ligature had been applied to the femoral in Hunter's canal, no traces of the ligature were found. The calibre of the vessel at that point was not diminished, but it was filled with adherent clot. The coats were deeply reddened.

Summary.—Of the eighteen cases recorded in the preceding table, twelve recovered and six died.

Healing by first intention occurred in one case only (No. 2). In one case the knot of the ligature was discharged through a sinus, which remained after the rest of the wound had healed (No. 5).

Secondary hemorrhage occurred in four cases, or 22.5 per cent.; it was readily checked in two (Nos. 3 and 4), and in two (Nos. 11 and 16) proved fatal. Premature softening of the ligature occurred in three cases (Nos. 8, 16, and 18), or in 16¼ per cent.

Cause of Death and Condition of Vessel.

In Holmes's case (No. 1), the man died from inflammation of the sac. The vessels were closed merely by thin diaphragms. In Stock's case (No. 4), the cause of death was obscure, but seems to have been septicæmia. The vessel was closed by a firm clot.

In Spence's case (No. 8), death occurred from embolism of the middle cerebral artery, caused by the premature relaxation of the ligature on the second day. The artery was not constricted.

In Watson's first case (No. 18), the man died of hemorrhage from the sac. The femoral artery was not constricted, but was filled with adherent clot, which had probably formed not long before death. The iliac was not obstructed, and presented no traces of having been ligated. In his second case (No. 11), death occurred from hemorrhage at the point of ligation, and the artery was completely divided.

In Holden's case (No. 16), death occurred on the eighth day, from hemorrhage at the point of ligation. A small jagged perforation existed, and there was no clot. In cases of this kind it is difficult to think that the ligature is absorbed: it seems more probable that in its broken-down condition it is discharged. It might readily be overlooked.

Holmes, after mentioning Watson's and Holden's cases, says, "I have heard of another case in which a carbolized catgut ligature softened and allowed the recurrence of pulsation."* I can find no record of the case referred to.

In amputations, carbolized catgut has been frequently used by Lister† and others, but no record of their cases has been published, with the exception of two by Mr. Holmes:

1. Amputation of fore-arm. The wound healed by first

* Lancet, Sept. 13, 1872, p. 450.

† Dr. Charles T. Hunter informs me that he carefully compared the results obtained by Watson and Lister in their respective wards in the Glasgow Infirmary. The one used *no* antiseptics, and the other employed his peculiar method in every operation. There was no apparent difference in their success.

intention, excepting a small hole, which continued to discharge foul pus till death, which was caused by chronic pyæmia.

2. Amputation of thigh; death in six days. On opening the stump, the ligature which had been applied to the femoral was found softened and partly absorbed. It came away with very slight traction. Scarcely any coagulum was found in the vessel. Of this case, Holmes observes, "I am not certain that secondary hemorrhage would not have occurred, had the patient lived."*

Mr. Spence refers to a case of amputation of the thigh, of which I can discover no other record, in which hemorrhage occurred from the slipping of a carbolized catgut ligature from the femoral artery.†

CONCLUSION.

In the preceding pages the writer has endeavored to present, so far as his ability extends, a plain and unbiassed statement of our knowledge in regard to the more important materials employed for ligatures. It is hoped that sufficient information has been accumulated to enable the reader to decide for himself which of these substances is the best suited to its purpose.

Catgut prepared by soaking in water has been abandoned as a ligature. It was found to possess all the disadvantages of silk, besides some peculiar to itself. It divided the vessel, was sometimes softened prematurely, and did not generally remain encysted when healing of the wound occurred over it.

Carbolic acid, it has been maintained, has the power of greatly changing the properties of catgut. "By applying a ligature of animal tissue antiseptically upon an artery," says Lister, "we virtually surround it with a ring of living tissue, and strengthen the vessel where we obstruct it. . . . For my own part," he continues, "I should now without hesitation undertake ligature of the innominate, believing it would prove a very safe procedure."‡

The only apparent ground for Professor Lister's lively faith lies in the experiment on the calf,§ before detailed. In the writer's repetition of this experiment, one of the ligatures had disappeared, and the other (the largest) was in nearly the same condition as when applied, presenting no signs of organization. Ever since the time of Porta, it has been known that catgut could be absorbed; but that the vital fluid could enter into its substance and transform it into living tissue, though indeed "a consummation devoutly to be wished for," is highly improbable, and the writer thinks sufficiently disproved by his experiments.

Mr. Holmes adopts a more moderate tone; from his own case, he concludes—

"That arteries may be tied as securely with carbolized catgut as with silk; that such ligatures melt in the wound without being discharged from it; that an artery under such circumstances may preserve its continuity, while its tube is obliterated at the part tied; thus, that the chief risk of secondary hemorrhage after ligation is obviated."‖

The cases recorded prove that these qualities cannot be depended upon. The ligature melts away in the wound, but it may melt too rapidly, as we have seen in three out of the eighteen recorded cases. This may lead in some instances to directly fatal results, as in Spence's case, or as in Holden's and Watson's cases. The ligature may remain long enough in place to set up ulcerative action in the external coat, and yet not keep the internal coats long enough in contact to insure adhesion. Is it safe to intrust our patient's life to a ligature which may become completely softened in less than eight days?¶

Why in some cases catgut should become softened so rapidly, it is difficult to explain, just as we do not understand why it sometimes becomes encysted and is sometimes absorbed. It may be that in some cases the secretions of the wound have a greater corroding power than in others.

That the chief risk of secondary hemorrhage is avoided is, unfortunately, an assertion not warranted by experience; for, as we have seen, this was the cause of death in two instances, or one-ninth of the recorded cases. Out of the six hundred cases ligated in the ordinary manner recorded by Porta, who is noted for his accuracy, but one-twentieth died of this accident.

Carbolic acid seems to render catgut more irritating to the tissues; for, as has been seen, the majority of experiments in which carbolized catgut was inserted under the skin, or used for sutures, were attended with suppuration. This is in marked contrast with silk.

With *silver* the results of practical experience have proved so unsatisfactory in operations on arteries in their continuity that probably it will be rarely used hereafter as a ligature. Thus, three out of the eleven tabulated cases perished of secondary hemorrhage. Even in the lower animals, the writer's experiments have shown that it generally divides the vessel.

Howard's theory, that this result would not ensue if the silver were applied so as only to diminish the calibre of the vessel, is not sustained by the results of the case on which he operated. Porta's experiments with the slack silk ligature also tend to disprove it. In one (No. XVIII.) of the writer's experiments, the application of a silver ligature, after Howard's plan, was followed by the formation of a "false aneurism."

In other operations, the use of silver must be exceedingly inconvenient, as any one may test for himself by attempting to tie a vessel with it. It has no compensating advantages. This statement will be borne out by an examination of the cases given.

It seems that metallic ligatures were first suggested from the idea that balls when lodged in the tissues were generally harmless. That this idea is unfounded is proved by the observations of Hutin, chief surgeon of the Hôtel des Invalides, Paris. He examined four thousand men in five years. Two hun-

* Lancet, Nov. 1872, p. 564.
† Spence, loc. citat.
‡ Lancet, April 3, 1869, p. 455.
§ It should be remembered that at the time Lister wrote the article quoted from, carbolized catgut had never been employed on man.

‖ Loc. citat.
¶ See Experiment XXIX.

dred and twelve of these had bullets, or similar substances, lodged in their bodies; out of which number only twelve suffered no inconvenience.

In the writer's experiments in which pieces of silver were inserted in the tissues, it seems that the chief cause of the suppuration which generally ensued was the inflexibility of the metal, so that it could not accommodate its shape readily to the movements of the parts.

Lead has not this disadvantage; but, as a ligature, there is no reason to believe that it would be superior to silver. It is to be wished, however, that we had more clinical experience on this point.

Silk has been accused by Simpson of delaying the union of wounds, and rendering pyæmia more frequent.

"It rapidly imbibes from the surrounding tissue," says Simpson, "animal fluids into its substance; and these dead fluids speedily decompose and render the threads morbidly poisonous and irritant agents to the contiguous living tissues."*

These assertions—for they are nothing more—have generally been denied by practical surgeons. Porta's experiments, which are confirmed by those of the writer, prove that, in the lower animals, silk is generally unirritating.

Practically, the plan of burying silk ligatures in the tissues has not been found successful, as a general rule; but it remains yet to be proved that the presence of the ligature, as now used, is injurious. In fact, some surgeons maintain that the thread acts beneficially, by draining the deeper parts of the wound.

The healing of large wounds by first intention is rare, but it sometimes occurs, in cases where silk is used. Thus, Dr. Charles T. Hunter has furnished me with the details of a case in which he excised the breast, using silk ligatures and sutures; union occurred by first intention, except at one spot, from which about half a drachm of pus was discharged, because a suture had been allowed to remain too long in place.

As has been shown, secondary hemorrhage is less common in operations on arteries in their continuity, where silk is used, than where the other materials are employed; and in other operations it is quite uncommon.

From a consideration of the preceding facts, it is believed that silk is the safest, and therefore the best, material yet discovered for the ligation of arteries.

THERAPEUTIC NOTES.

"KOUMISS."—The following formula is that of Dr. Townsend, of Cork: "℞. New milk, one quart; good thick milk (sour?) or fresh buttermilk, one noggin [a noggin is one gill]; white sugar, three or four lumps. Mix thoroughly till the sugar is dissolved; keep in a warm place in a jug ten hours; pour from jug to jug till quite smooth; bottle in soda-water bottles, velvet corks, tied down; let remain in a warm place twenty-four hours in summer, thirty-six in winter. Shake well before taken. Its fermentation is the test of excellence. Drink in quantities."—*A. Bigelow, in Boston Medical and Surgical Journal.*

TREATMENT OF ECZEMA PAPULOSUM.—M. Bazin uses the following in cases of this form of eczema accompanied by dyspepsia, etc.:

℞ Sodii bicarb., ʒiℨi;
Syrupi saponariæ, fʒviij.—M.

Sig.—Tablespoonful morning and evening.

Externally the following:

℞ Boracis, gr. xxx;
Glycerinæ, ʒiiss;
Aquæ destillat., ad fʒx.

This lotion is to be applied, rather warm, morning and evening, and the skin is afterwards to be powdered with starch. Occasionally starch-baths—two pounds of starch to the bath—are found to give relief.

NEW MODE OF ADMINISTERING RAW MEAT.—Dr. Yvon gives the following method of preparing a palatable mixture having all the virtues of fresh meat while possessing an agreeable taste:

Raw meat (fillet of beef),	250	parts,
Sweet almonds (charred),	75	"
Bitter almonds,	50	"
White sugar,	80	"

The mixture is to be rubbed slowly up in a mortar until a homogeneous paste is obtained, adding from time to time a sufficient quantity of water to give a proper consistency. The amount of water may be so varied as to give a solid or a liquid mixture. The liquid, which is in the form of an emulsion, will slowly settle, but may easily be mixed again by shaking lightly. It may be preserved unchanged for a long time if kept in a cool and dry place. In order to render it more nourishing, the yolks of one or more eggs may be added.

TREATMENT OF ANTHRAX BY SUBCUTANEOUS INCISIONS.—M. Guérin recommends this mode of treatment as preferable to that ordinarily practised, which involves the exposure to the air of the wounds made. A puncture is made through the summit of the tumor, and then the various crucial incisions are completed subcutaneously without further opening. By this method of operation the interminable suppuration often observed after operation for anthrax is avoided, as well as the not infrequent hemorrhages and also the large eschars very apt to result from the usual procedure.

After the incision is made as above, no further treatment is necessary excepting the use of poultices. Accidents from infection are rare. The incision may be made as soon as induration is established.

INTERTRIGO.—As chafing of the skin of various parts of the body is quite common at this time of the year, the following formula may prove timely:

℞ Bismuth. subnitrat.,
Glycerinæ, āā ʒij.—M.

A few drops of tincture of cochineal may be added to give the mixture a flesh-tint, and a little water may be added in warm weather. It may be smeared over the opposing surfaces after they have been carefully cleaned.

ICE IN BLENNORRHAGIC CYSTITIS.—In cases of blennorrhagic cystitis accompanied by painful erections, etc., small ovoid pieces of ice introduced into the rectum just within the sphincter are found to give decided relief. The ice may be renewed every hour, and two or three applications will usually suffice to give relief. Little or no curative action, of course, can be expected.

* Acupressure, p. 23.

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EDITORIAL.

THE VISION OF MALTHUS.

NOT long since, we took occasion to lay before our readers some statistics showing that the average subsistence and means of comfort for the race were increasing. This it appears is true chiefly, if not solely, in what we may call the enlightened nations,—those which are in reality or in origin European. In India, on the other hand, the vision of the much-derided seer seems to be taking the grim outlines of a reality. It appears that the population of that country is now, for the first time within the historical period, rapidly increasing. Formerly, the constant wars between the numerous native princes, the deadly arts of the Thugs, the family broils, the secret practices of the poisoners, the suttee, the car of Juggernaut, and, above all, the universal practice of infanticide, kept down the population. The English rule has, however, closed most of these outlets, and the result is daily becoming more apparent. In Bengal the traditional population was 43,000,000, but a recent census has shown that there are at present 66,000,000 of inhabitants. This seems a cheering result to the philanthropist; but there is a dark side to the picture, and there are many reasons for believing that the national infanticide, to us simply an atrocious and worse than brutal crime, was really the outgrowth of a necessity and the result of that peculiar instinct of self-preservation which often leads masses of people to acts seemingly most foolish or wicked, but, in reality, safeguards against greater evils.

Already in many parts of India the population is as dense as anywhere in the world; the habits of the people, and the very structure of society, are insuperably opposed to change of locality. What is the result? The great mass of the natives are in the depths of poverty. According to a recent writer, one-fourth of the agricultural laborers in Bengal earn only ten shillings a month apiece.

Without further discussion, it is plain that the barest subsistence can alone be commanded by these laborers for their families. This subsistence is almost solely composed of rice. The ordinary price of this grain, in India, is one and a half farthings per pound; so that a laborer can purchase of it three hundred and twenty pounds with his month's wages. Let, however, the crop fail, and rice advance to five farthings a pound, and the laborer can purchase only ninety-six pounds. The advance is less than an English penny, but it reduces the purchasing power of a man's wages to less than one-third of the normal amount. Practically, this advance in the cost of rice has been found to mean actual, present famine,—men, women, and children starving in their hovels, dying by the way-side, perishing of hunger in the fields. Our notions of famine are that food is not in the country. But, under the stimulus of a higher price abroad, in India the sustenance may be streaming out of the sea-ports, whilst the people are dying for food in country and in city.

As a result of the increase of population under Christianizing influences, famines, which were formerly infrequent, have become frightfully common. Since 1857 there have been, in India, no less than four; some of them of great severity.

The remedy for famine which the native potentate applied was simply to let things right themselves,—to allow the people to die until the demand for food was decreased to the supply. The British government recently has introduced the Christian policy of feeding the starving. This, it is readily seen, must increase the evil in the long run, although giving relief for the present. Fools, it is said, rush in where wise men fear to tread; but we may venture an opinion that the trouble must be met and conquered by other means. Grafting a portion of European civilization upon an old civilization like that of India naturally leads to the bringing forth of bad fruit. Two diverse, unlike halves can rarely be joined into a seemly whole. The true remedy for India is, we believe, to be found in the complete supplanting of the Oriental civilization by a European civilization, so modified as to suit the exigencies of climate and of race. Let a habit of emi-

gration be established, so that there shall not be in one part of the country vast uninhabited jungles, and in another overcrowded fields; let rotation of crops be introduced, and the dangers of a dependence upon a single staple be insisted upon; let, in brief, a revolution of the Hindoo habits occur, and though during the transition-period enormous suffering must be endured, yet in the end, we believe, a complete new life and a reorganized society will be safely achieved,—a result without which Christianity will probably in India prove a failure.

CORRESPONDENCE.

Boston, Mass., June 4, 1874.

To the Editor of the Philadelphia Medical Times:

SINCE I left my native city I have roved considerably, and have had opportunity to become somewhat familiar with various localities. At present I am sojourning in Boston, and thus far have had sufficient "nerve and muscle to contend with New England climate and customs." The climate, to be sure, during the past three months, has been trying enough to one's constitution: in fact, we have had many just such disagreeable days as are not unfrequently encountered in your city in the spring. So far as the customs are concerned, if by this term one may include the treatment he is likely to meet with from the natives of this land of the Puritans, especially the doctors, I can truly say that nowhere could a stranger have been more kindly received than I have been. It may be true that the community here is conservative in its tendencies, and will not at first sight be "gushing" towards a new-comer, or admit him to full standing, but demands that he shall in some way show himself worthy of advancement. However, when once this demand has been complied with, I can affirm that, so far as our profession is concerned, every encouragement is offered by the older members to the younger.

The Massachusetts Medical Society, which began its yearly meeting June 2 in its usually quiet and unobtrusive manner, is not only the oldest, but also by far the largest, of the State Societies of our country, having been incorporated in 1781, and numbering at the present time some thirteen hundred members. It invites to, and seeks to include in, its membership, all properly qualified practitioners of legitimate medicine throughout the State; and any physician who is not a member is, with propriety, suspected as to the soundness of his professional character.

During the forenoon the members availed themselves of the opportunity to visit the two principal hospitals of Boston, and also the Brighton Abattoir, which is, says the last number of the *Boston Medical and Surgical Journal*, "perhaps the greatest triumph of the State Board of Health." It has, of late, become a popular resort for consumptives, who are trying the benefit of drinking blood fresh from the slaughtered animals. As to its efficacy, a physician, several of whose patients have regularly indulged in this agreeable pastime, is reported to have said that as yet they had failed to derive any advantage therefrom.

At the Massachusetts General Hospital there was a surgical visit, with operations. Opportunity was also given to inspect the two new wards, the Warren and Jackson, which have been recently opened. They are thus described in the last report of the hospital: "These structures are modelled somewhat upon the plan of army field-hospitals, with such modifications as climate and greater permanency require. The dimensions are forty-five by fifty-five feet, by fifteen and a half feet high to the eaves. Frames and outside walls of iron; high-pitched trussed roofs, at apex of which are ventilators, ten feet square, with chimney-stacks in centre. They are connected with the main hospital by corridors. Warren ward is one story high, without interior divisions, forty-four feet square inside, sixteen feet high at walls, and twenty-two and a half feet high in centre; arranged for twenty beds, allowing about one thousand eight hundred and forty cubic feet of space to each bed." Windows are arranged upon three sides, and so open as to allow a circulation of air without a direct draught upon the beds. For heating-purposes, a chimney-stack is placed in the centre of the ward, on two opposite faces of which are open fireplaces, and on the other two open Franklin soapstone stoves. Steam radiators. hung beneath the floor, and supplied with fresh air from without, also assist in heating. "A glazed door opens upon a platform in the south front, over which is to be an awning in hot weather. Jackson ward is similar in construction and dimensions, excepting that the interior is divided into eight rooms, each twelve by eighteen feet, fifteen and a half feet high, containing three thousand cubic feet of space, and of sufficient size for two beds each. Each room has an open Franklin soapstone stove. The ward is divided by a centre and a cross corridor, twenty-one and a half feet high, which, as well as the rooms, are connected with the large ventilator in the roof."

At the City Hospital there was also a surgical visit, with operations. Of great interest was the exhibition of patients in the two tents that were spread in the yard. Several cases which, while confined in the walls of the Hospital, were *in extremis*, are fairly on the road to recovery since they began to camp out.

At 12 M. the Society met in the hall of the Lowell Institute, to listen to the reading of papers.

The first paper was by Dr. J. O. Whitney, of Pawtucket, who reported a case of dilated kidney in a patient 24 years of age. When three years old he had dysentery, and since then he has been subject to attacks of pain in the left lumbar region and in the neighboring part of the abdomen. When seen first by Dr. W., there was a tumor occupying the left side of the abdomen, and extending towards the right, beyond the median line. The patient was then in a very weak condition.

The diagnosis, arrived at with a good deal of difficulty, was hydronephrosis. The tumor was evacuated with the aspirator, and, after a few days, a second time; the fluid obtained at the tappings confirming the diagnosis. The patient is now well. The paper concluded with an account of the literature of the subject, and a discussion as to the difficulty of diagnosis and the treatment of cases of hydronephrosis.

To a listener, it seemed that the reader intimated quite often enough the superiority of his diagnostic powers over those of other gentlemen whom he called in consultation, and that he spoke with quite as much authority as an experience of one case would allow.

Dr. Douglass Graham read a paper on Massage. He stated that the ancients sometimes employed it in the treatment of disease. He discussed particularly its advantages in subacute rheumatism and in recent sprains.

The third paper was by Dr. T. B. Curtis, of Boston, on Cotton-Wool Dressings. This method, as adopted by Guérin, of Paris, was detailed in a very interesting way by the reader, who had personal experience in its employment in Guérin's ward. It is one of the forms of the antiseptic method of dressing wounds, the theory being that the septic germs which the air contains are filtered out on their passage through the cotton, so that only pure air reaches the wound. This mode is of especial use in the dressing of stumps after amputations. The cotton needs to be applied in great abundance; Guérin's rule being, for those who were applying it for the first time, to put on *too much*. It is to be firmly bandaged to the wound, and not to be removed, if all goes well, for three weeks. After that time, the wound is to be dressed in the ordinary way. It is judged that the wound is doing well, first, if the condition of the patient, secondly, if the dressing, remain satisfactory. The first of these two points is in a great measure determined by careful observations with the thermometer, which will rise abnormally should unfavorable complications arise, while if little or no discharge appears from under the cotton the second point is satisfactorily established.

Dr. Curtis did not claim that pyæmia and septicæmia were entirely unknown in cases where this dressing had been employed, but that their frequency seemed to be much diminished since Guérin had adopted his method. The application gives great comfort to the patient, the reparative process being accompanied with scarcely any pain. The dressing in time becomes by no means odorless.

Dr. E. P. Hurd, of Newburyport, then discussed at length the Germ-Theory of Disease. He gave a *résumé* of the views of Hallier, Cohn, Pasteur, Salisbury, Beale, and others, but considered that they were all of them speculations, and none of them established facts. As to the origin of disease, or in what it consists, we must as yet confess our ignorance.

Chronic Cervical Endometritis formed the subject of a paper by Dr. S. D. Presbrey, of Taunton. We failed to discover anything new in the communication, unless it was the suggestion that, by means of an instrument for insufflation, powders, as of tannin or persulphate of iron, could be applied to the interior of the uterus with facility.

Dr. F. W. Goss, of Roxbury, next called attention to the dressing of wounds. The various methods now in vogue in the dressing of wounds were considered, of which the occlusive treatment and the open treatment are the extremes. The reader believed that, in view of these conflicting methods, it was well to keep in mind the leading principles held by the best practitioners from time immemorial in the treatment of wounds. We heard it remarked that the article was a temperate one, and might be very useful.

The last paper of the afternoon was by Dr. J. Baxter Upham, of Boston, entitled "Reflections on the late Epidemic of Cerebro-Spinal Meningitis in Massachusetts." The statistics of the epidemic had evidently been collected with much care and labor, and their results were concisely stated. Dr. Upham remarked that it was surprising how varied had been the treatment, and yet how confident different practitioners had been in modes as distinct as possible. No conclusion could be gathered from the returns as to what therapeutic agents could be most advantageously employed in cerebro-spinal meningitis.

During the evening of Tuesday the Councillors elected the following officers for the ensuing year: *President*, Dr. B. E. Colting, of Roxbury; *Vice-President*, Dr. Joseph Sargent, of Worcester; *Treasurer*, Dr. Francis Minot, of Boston; *Corresponding Secretary*, Dr. C. W. Swan; *Recording Secretary*, Dr. F. W. Draper; *Librarian*, Dr. D. H. Hayden, all of Boston. Dr. G. H. Lyman, of Boston, was appointed Orator, and Dr. T. N. Stone, of Wellfleet, the Anniversary Chairman for the next annual meeting.

Wednesday the Society reassembled at 10 A.M., the President, Dr. George C. Shattuck, of Boston, in the chair.

It was announced that Professor Henry W. Acland, of Oxford, England, had been elected an honorary member.

Dr. Edward Cowles, the Superintendent of Boston City Hospital, read a paper on the Treatment of the Sick in Tents and Temporary Hospitals. The reader held that recent observation and experience had shown that more favorable results were obtained from the treatment of patients in temporary structures than when they were placed in regular hospitals. He contended that it was a mistake to spend vast sums of money to erect costly and magnificent buildings, when a much less amount could, with far greater advantage to the patients, build a hospital with a view to its removal in a few years. He showed a diagram, and gave an account of the structure of the tents in use at the institution with which he is connected.

In the discussion which followed, several members coincided with Dr. Cowles in the views he had advanced, and related their experience in the late rebellion in confirmation.

Dr. Henry Clarke, of Worcester, then read a paper on the Surgical Treatment of Empyema. He stated that the plan which was now recognized as the best mode of treatment in such cases—that of a free opening into the chest, to remain unclosed as long as pus continued to be secreted—was recommended by Hippocrates. The paper was a tiresome one, from the details of cases which it contained. What a want of good judgment it shows to attempt to read the daily record of cases in all its items! It may do for the printer, but is wearisome to any audience.

Transfusion was the subject treated of by Dr. J. R. Chadwick, of Boston. His paper was concise, interesting, and to the point. After stating the history of the procedure, its physiological and other relations, and the class of cases to which it was adapted, Dr. C. showed Aveling's apparatus for the performance of immediate transfusion, and explained its method of use.

At one o'clock, P.M., the Annual Address was delivered by Dr. Nathan Allen, of Lowell, on The Medical Problems of the Day. The part of greatest interest was in regard to the law of human increase. Dr. Allen holds it to be an established fact that our native population is relatively decreasing,—the births hardly equalling the deaths,—while the children of foreigners are rapidly supplying their places; so that if the present state of things continues the descendants of the old English stock will soon be in the minority.

The hour allotted for the discourse was evidently too short a time for the speaker to present in full all he had prepared: nevertheless, the selections were made with judgment, and were so connected as to give the audience a good understanding of the orator's views.

At two o'clock, the Fellows, to the number of nearly eight hundred, passed into the Music Hall to the Anniversary; and after the dinner, the Anniversary Chairman, Dr. R. L. Hodgdon, of Arlington, called the meeting to order and gave an address of welcome.

To the toast, "The Massachusetts Medical Society," the retiring President, Dr. George C. Shattuck, responded. He alluded to the changes that had taken place in the course of study at the Harvard Medical School, insuring a better education to its students than under the old system, and that its graduates would enter upon their professional work with a better preparation, therefore, than had been possible before. Reference was also made to the trial and expulsion of the homœopathic members, as a vindication by the Society of the principles and purposes for which it exists. As to the admission of female practitioners, they had themselves settled the question by putting their school into the hands of the homœopaths.

Toasts were given and speeches were made by the Chaplain of the day, Rev. Mr. King, of Roxbury, by Dr. Allen, by Dr. Colting, the President elect, by Dr. Parker, formerly of China, Dr. Green, of Boston, etc., etc. Dr. Stone, of Wellfleet, read an original and humorous poem.

Thus ended a very pleasant session of this venerable Society,—one of the pleasantest and most profitable ever held, I am told. PENN.

PROCEEDINGS OF SOCIETIES.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

A CONVERSATIONAL meeting was held March 11, 1874, at 8 o'clock P.M.

The PRESIDENT, DR. W. L. ATLEE, in the chair.

Dr. B. LEE had recently seen several cases which were of interest as presenting considerable obscurity in regard to diagnosis. The first which he would mention was that of a little girl about six years of age, residing in the upper part of the city, who was placed under his care by Prof. Stillé, with the information that the case had been treated by a female physician as one of disease of the right hip-joint. Not being satisfied with her management of the case, however, the parents had requested him to examine the child. Prof. S. had been unable to discover the signs of hip-disease, but thought that he had detected a spinal curvature in the lumbar region, and considered that this was probably the cause of her lameness. He had gone to the case with the preconceived notion that he simply had to differentiate between disease of the hip and Pott's disease. The history was as follows. The parents were both in good health, and had older children whose health was also good. This child had never been robust, nor had she ever had any very serious illness. Last summer, however, she had an attack of fever, intermittent and remittent, the mother was not certain which, lasting about ten days. Some time after this it was observed that she limped in walking, and became easily tired. She was taken to the sea-shore, but did not react well after surf-bathing, and appeared to walk worse rather than better. Her condition had not changed materially up to the time that he saw her, except that she was inclined to hold the knee bent, could endure less fatigue, and evinced more nervous excitability. The points which he made out on comparison of the two limbs were as follows. The right limb was half an inch shorter than the left. The flexors of the right knee were slightly contracted. The nates of the right side were smaller than those of the left, but did not present the characteristic flattening of hip-disease. It was impossible to determine whether upward force produced pain, as the child cried incessantly during the entire examination. The right limb could be abducted and rotated with ease, but the left presented considerable resistance to any effort to move it in these directions. The child had not been subject to "starting-pains" at night. The only pain complained of was behind the right thigh above the knee. Both in standing and walking, the foot was set flat upon the floor, and in a natural position. The signs of the early stage of coxalgia, therefore,—viz., apparent lengthening, fixation of the hip-joint with contraction of the adductors, eversion of the toes, elevation of the heel, and spasmodic contractions during sleep, with pain in the knee and along the front of the limb,—were every one absent as regarded the right limb. Certain of them were present in the left, but that had never been complained of. So far, results were negative. There was no hip-disease. Now for the spine. On placing the child in the erect standing posture, there certainly was a curve, having its convexity to the right, in the lumbar region, but it could be removed by direct pressure and by the muscular efforts of the patient. She could stoop forward, flexing the spine, to pick an object up from the floor.

She complained of no ventral pain, or of morning rigidity; her toes were not inverted; the curve presented no angularity whatever; and on placing her on her knees, or laying her on her face, it was obliterated. He was therefore compelled to decide against the existence of any organic affection of the spine. The curve was simply the result of the shortening of the right limb, and had no pathological significance. The child was by this time in such an excited condition that he considered it unwise to proceed further with the examination, and, confessing his inability to arrive at a definite conclusion, he proposed to continue the investigation another day. Three days later he saw the child again, and this time added the following facts to those which he had before determined. The temperature of the right limb was decidedly lower than that of the left. Its circumference in muscular regions was from half an inch to an inch less. The muscles were soft and flabby, and, although all the motions of the limb were accurately made, they were less vigorous than those of its fellow. The ligaments of the hip-joint were somewhat relaxed. In other words, the innervation of the limb, as regarded circulation, calorification, nutrition, and muscular force, was decidedly deficient. Coupling this fact with the history, he thought that he had found ground to stand upon. The attack of fever which she had experienced eight months before was simply symptomatic of an attack of inflammation of the meninges of the spinal cord, of moderate severity, possibly malarial in its origin, which would account for the suspicion of intermittent. This was followed by effusion, producing loss of power in the right limb, evidenced by the difficulty of locomotion, and gradually by atrophy and by contraction of the hamstring tendons; the other limb being either not affected at all, or, as is often the case in the atrophic paralysis of childhood, speedily recovering. Dr. Grier, who applied the galvanic tests at Dr. Lee's request, found in the response which the muscles of the two limbs gave, an entire confirmation of the diagnosis.

The lecturer of the evening having now arrived, Dr. Lee declined to occupy longer the time of the Society. Dr. L. J. Deal then read a paper on "The Relation of the County Society to the Physician, and the Physician to the County Society."

[Although this paper was most excellent and very well received, yet, owing to the matter not being of general scientific interest, we have been forced by the very crowded state of our columns to omit both it and the discussion to which it gave rise.—ED. *P. M. T.*]

Dr. KEYSER mentioned the case of a child seven months old, which was brought to him the previous day with evidences of an old iritis and occlusion of the pupils of both eyes, without ever having had any inflammation in either eye since its birth. The child is fat and healthy; was born in perfect condition, as certified to by both mother and nurse, who brought the child to his office. The left eye was small and undeveloped, the iris drawn strongly and closely to the outer edge under the sclero-corneal line, pupil completely obliterated. The right eye was full size, cornea clear, complete circular (synechia) adhesion of the iris to the anterior capsule, and pupil filled in with lymph so as to be entirely occluded.

The right nostril was almost closed by a diaphragm of tissue across it, through which a very small round opening could be seen. This hole was just large enough to allow a No. 1 Bowman's tube to pass through. The left nostril was natural and free. There was considerable discharge of mucus and blood at times from the left nostril. Rather doubting the history of no inflammation of the eyes after birth, Dr. K. wrote to the family physician, Dr. Stine, for information, who replied "that the child was born August 19 last, full-grown and perfectly healthy; had no sore eyes nor any inflammation of the eyes; the infant continuing in good health up to the 25th of the following month, when he was called to visit it for a severe attack of catarrh in the nose,—nose and ears discharging freely, but had no inflammation in either eye." Under all these circumstances, then, there must have been inflammation before birth—an "iritis in utero."

Constitutional syphilis is suspected, but could not be learned from the parties. The case is very rare and interesting.

GLEANINGS FROM OUR EXCHANGES.

MERCURY AS A CHOLAGOGUE (*The Lancet*, May 2, 1874).—In a lecture on Functional Derangements of the Liver, Dr. Murchison expressed his belief that mercury and allied purgatives produce bilious stools by irritating the upper part of the bowel and sweeping on the bile before there is time for its reabsorption. He also added, however, that there are grounds for believing that, apart from its increasing the discharge of bile from the bowel, mercury exerts a beneficial action in many functional derangements of the liver, in whatever way this is to be explained. Patients of the greatest intelligence suffering from hepatic disorders constantly declare that they derive benefit from occasional or repeated doses of mercurials which no other medicine or treatment of any sort confers. It is not impossible that the good effects of mercury on the liver, and in some forms of inflammation, may be due to its property of promoting disintegration. Mercury appears to have the power of rendering effused fibrin less cohesive, and so more easily removed by absorption than it otherwise would be. Modern physicians of high standing, and little likely to be accused of credulity as to the beneficial action of drugs, have thought that mercury is useful in croup, by causing a degradation and disintegration of the plastic membrane. If this be so, it seems not improbable that mercury, which from experiments we know to reach the liver, may, under certain circumstances, act beneficially by promoting, or in some way influencing, the disintegration of albumen. The remarkable effect of mercury on constitutional syphilis probably admits of a similar explanation. In whatever way it is to be explained, he considers the clinical proofs of the efficacy of mercury in certain derangements of the liver as overwhelming, and remarks that he says so the more advisedly because he was taught to regard mercury as a remedy worse than useless, not only in hepatic diseases, but also in syphilis; his present convictions having been forced upon him by experience.

EPILEPSY AND MIGRAINE (*The Journal of Mental Science*, April, 1874).—It having been asserted that the paroxysms of some forms of sick-headache resemble epileptic attacks, and may even develop into true specimens of the latter, and bromide of potassium having been found to have a decided beneficial effect in such condition, Mr. Richard Green has employed Indian hemp in nine cases of epilepsy, arguing that if there were any real identity between the diseases it might be expected to do good, as it unquestionably does in paroxysms of migraine. In no case, however, was there any diminution in the number of seizures; and in seven out of the nine there was a slight increase.

PARALYSIS OF THE HAND AND FORE-ARM CAUSED BY ESMARCH'S BLOODLESS METHOD (*The Medical Record*, May 15, 1874).—Dr. Robert Weir reports the case of a young man in whom it was found necessary to remove some dead bone from the elbow-joint. Esmarch's bandage was applied, the rubber cord of the diameter

of one-quarter of an inch being, as usual, tightly drawn three times around the limb at the junction of the upper and the middle third of the arm. The compression was continued about three-quarters of an hour. After the inflammatory reaction of the wound had passed away, it was found that the patient was unable to flex or extend any of the fingers, or the hand on the fore-arm. He complained of numbness on the tips of all his fingers, of the palm, and anterior surface of the fore-arm. The lesion was mainly confined to the median nerve. This condition remained unchanged for some time, but he afterwards rapidly regained the use of the affected muscles under the application of the galvanic current.

WOUND OF THE BRAIN—RECOVERY (*The Richmond and Louisville Medical Journal*, May, 1874).—Dr. R. F. Baldwin reports the case of a lad sixteen years old who was accidentally wounded by the discharge of a Colt's pocket-pistol in the hands of a companion a few feet distant. Upon receipt of the shot the boy fell with violence, but did not lose consciousness. The ball, about the size of a buckshot, entered the right frontal bone an inch above the centre of the eyebrow, and, passing through the brain, lodged in the occipital bone near the centres of the occipital cross. A silver probe passed by its own weight to the centre of the brain without touching the ball. As a precautionary measure he was bled, and Epsom salts were administered. The wound healed rapidly without any constitutional disturbance, and in ten days he returned to his home. He is still living in good health, and has never suffered the slightest inconvenience from the accident.

PHOSPHORUS IN MELANCHOLIA (*The Journal of Mental Science*, April, 1874).—Dr. S. W. D. Williams reports six cases of melancholia treated with phosphorus, three of which resulted in recovery, two in partial benefit, and one in entire failure. In the latter case a cure was rapidly effected, after the withdrawal of the phosphorus, by means of opium. In each case the dose was one pill of one-thirtieth of a grain twice daily, increasing to three or four pills daily. No toxic effects were observed, except a slight warmth in the epigastrium.

ATROPIA-POISONING.—Dr. T. H. Newland reports (*St. Louis Surgical and Medical Journal* for June) a case of atropia-poisoning in an adult. One and a quarter grains ingested; vomiting about an hour after ingestion; one-fourth of a grain of morphia every twenty, and two grains of carbonate of ammonium every ten minutes for two hours; recovery.

MISCELLANY.

SOME years ago we read an article upon an animal called the "devil," a native, we believe, of Van Diemen's Land, in which the writer, after giving instances of the creature's extraordinary ferocity, ended, "Of all animals, the very devil of devils is the devil itself." English colonies would seem also to own a monopoly of the same type as seen in quacks. Recently, in British Guiana, according to the *British Medical Journal*, a midwife named Amsterdam was called to see an unfortunate woman then in labor. Without giving much space to the details of the treatment instituted by this daughter of Belial, we quote the following specimen:

"The 'stretching' with the rope, which we have already spoken of, is described by a witness: Three women tied the deceased's wrists with tarred rope, twisting her up to the beam of the room with her legs dangling. . . . One beat her with a strap with a buckle to the end. They repeated this every now and then, the deceased begging them to let her down, as she was so weak. She was lying from Friday to Monday on the bare boards. There ought to have been no difficulty in the birth, but the woman died undelivered, after nearly three days of agony."

THE NECROMETER.—It is stated that M. Bouchut has obtained the prize offered by the French Academy for an easy method of distinguishing simulated from real death. His "necrometer" appears to be simply a peculiar thermometer so adapted as to fit the axilla and to mark zero when death has occurred.

NOTES AND QUERIES.

As we admitted to our columns a letter sharply commenting upon the brain-experiment of Prof. Bartholow, it is but fair that we give place to the following letter, originally published in the *British Medical Journal*:

"SIR,—A case of epithelioma exposing the brain, on which I ventured to make some experiments, has excited unfavorable comment in your widely circulated journal and elsewhere. Under these circumstances, I beg to offer some explanations, which, whilst they do not justify the experiments in question, at least, it appears to me, put the matter in a less offensive shape.

"1. The patient was hopelessly diseased with a rodent ulcer, which had already invaded the dura mater. The ulcer was rapidly extending, and threatened an early extinction of life.

"2. The patient consented to have the experiments made.

"3. It was believed that fine insulated needles could be introduced without injury that would affect the progress and termination of the case, for the following reasons: The brain has been incised to permit the escape of pus, a notable and successful example of which has recently occurred in London. Portions of the brain-substance have been lost, and yet the patient survived; for example, the Massachusetts case, in which a tamping-iron was driven through the brain, the patient recovering, and dying many years afterwards of another malady.

"4. The faradic current was used; and this has, as is well known, no electrolytic action.

"5. The fatal result was attributable to the progress of the epithelioma. The erosion of the skull already had existed thirteen months. The thrombus found *post mortem* in the longitudinal sinus could not have been caused by the needles, which were introduced some distance from it on each side.

"Notwithstanding my sanguine expectations, based on the facts above stated, that small insulated needle electrodes could be introduced without injury into the cerebral substance, I now know that I was mistaken. To repeat such experiments with the knowledge we now have that injury will be done by them—although they did not cause the fatal result in my own case—would be in the highest degree criminal. I can only now express my regret that facts which I hoped would further, in some slight degree, the progress of knowledge, were obtained at the expense of some injury to the patient.

"I am, etc.,

"ROBERTS BARTHOLOW."

OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U.S. ARMY, FROM JUNE 9 TO JUNE 15, 1874, INCLUSIVE.

HASSON, A. B., SURGEON.—Granted leave of absence for fourteen days, to commence on 13th inst. S. O. 113, Military Division of the Atlantic, June 9, 1874.

WRIGHT, J. P., SURGEON.—Granted leave of absence for thirty days. S. O. 129, A. G. O., June 11, 1874.

LAUDERDALE, J. V., ASSISTANT-SURGEON.—Assigned to temporary duty at Fort Adams, R. I. S. O. 116, Military Division of the Atlantic, June 12, 1874.

GHISELIN, JAMES T., SURGEON.—Resigned June 6, 1874.